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ENTOMOLOGY.¹

The Pear-Tree Psylla.—During the last two or three seasons many pear orchards in Connecticut, New York and other States have suffered severely by the attacks of a small jumping plant louse of the family Psyllidæ. This insect is supposed to have been imported from Europe early in the present century, having been first noticed in Connecticut. It now occurs throughout many of the Northeastern United States, and as far west as the Mississippi Valley.

In a recent discussion of this insect in Bulletin 44 of the Cornell University Experiment Station, Mr. Mark V. Slingerland records one of the most notable pieces of entomological work done since the establishment of the stations. After an introductory paragraph indicating the recent losses due to the pest the author considers its past history in America; its place in zoological classification; the indications of its presence; the appearance of the immature and mature insect; its life history in detail, and the methods of preventing its ravages, all of which is followed by a series of technical descriptions and a full bibliography. One of the interesting points brought out is that the species is dimorphic, the summer form having been described as one species, and the winter form as another. Concerning this the author writes:

“ This difference between the summer and the winter adults is common among the *Psyllidæ*, and has before led to their being described as different species. It seems not to have been suspected that these insects were truly dimorphic or appeared in two distinct forms during the year. The general impression seems to have been that the adults appearing in the fall were at first the same as the summer form; and that as winter approached these adults gradually assumed the characteristics of the hibernating form. However, frequent observations upon *Psylla pyricola* in the field during August and September, 1892, have shown that from eggs laid about August 20th by typical summer adults, there hatched nymphs which showed no variations from the typical summer nymphs and from these nymphs there emerged about September 25th the distinct hibernating form *simulans*. The hibernating forms feed until the leaves fall and then seek their hiding places in which to pass the winter. None have been seen to copulate in the fall. But very few summer forms were seen after September 20th.

¹Edited by Clarence M. Weed, Hanover, N. H.

Thus in our Pear-tree *Psylla* we have a case of true dimorphism. The summer form is the typical *Psylla pyricola*, and may be designated when necessary to refer to this form alone as *Psylla pyricola pyricola*; while the hibernating form should be known as *Psylla pyricola simulans*."

Experiments showed that the immature stages of the *Psylla* were easily destroyed by spraying with kerosene emulsion. We are indebted to Mr. Slingerland for the use of the engravings on the accompanying plate, showing the stages and structure of the insect. Fig. 1 represents the adult insect; fig. 2, its head and antenna greatly magnified; 3, the abdomen of the male; 4, the abdomen of the female; 5, the wings; 6, the full-grown nymph, and 7, the egg.

Insects of Southern Alaska.—An important contribution to our knowledge of the coleopterous fauna of Southern Alaska has recently been made by Mr. H. F. Wickham,² who has published some of the results of a collecting trip made during the summer of 1891. The points visited were Fort Wrangel, mainland near Wrangel Island, Yes Bay, Loring, Hunter's Bay and Port Chester in Alaska, and the Stikine River Valley and Glenora in British Columbia. From his studies Mr. Wickham concludes (1) "That the fauna of Southern Alaska is less closely related to our alpine, northern inland or north-east coast faunæ than is that of the Stikine Canyon or of Glenora. (2) That the Stikine Canyon fauna is more closely allied to that of the north and east than is that of the coast, and about the same as is that of Glenora. (3) That the chief relations of all three are in the direction of Lake Superior. With larger lists this affinity might turn to the Rocky Mountains, especially in the case of Glenora."

Notes on Ohio and Other Phalangiidæ.—A recent study of a large collection of harvest-spiders (*Phalangiidæ*) from all parts of Ohio shows that the State is unusually rich in these interesting Arachnids. The following species occurred in the collection :

1. *Liobunum vittatum* (Say) Weed.
2. *Liobunum vittatum dorsatum* (Say) Weed.
3. *Liobunum nigripalpis* (Wood) Weed.
4. *Liobunum nigripes* Weed.
5. *Liobunum politum* Weed.
6. *Liobunum longipes* Weed.

²Entomology of Southern Alaska, Bull. Nat. Hist. Labrt. Iowa State Univ., V. ii, pp. 202-233.

7. *Liobunum ventricosum* (Wood) Weed.
8. *Liobunum bicolor* (Wood) Weed.
9. *Liobunum* (?) *calcar* (Wood) Weed.
10. *Liobunum maculosum* (Wood) Weed.
11. *Liobunum grande* (Say) Weed.
12. *Liobunum grande* var. *simile* Weed.
13. *Mitopus pictus* (Wood) Weed.
14. *Mitopus ohioensis* Weed.
15. *Phalangium cinereum* Wood.

An examination of more than fifty specimens of a harvest-spider in various stages of development taken along the banks of the Maumee River in Henry County, leads to the conclusion that the form from Illinois described some years ago as *Liobunum elegans* is an immature stage of the male of *L. bicolor*. A reexamination of the type specimen of *Mitopus ohioensis* after it has been in alcohol more than four years shows that it was apparently just ready to moult when captured. This gives rise to the suspicion that this is an immature form of *M. pictus*, the pink coloring possibly being due to the peculiar conditions of the moulting period.

The study and measurement of a considerable number of specimens of *Liobunum ventricosum* from many States shows that this species increases in size to the southward in a way similar to that of *L. vittatum*. The southern form is evidently sufficiently distinct for a subspecific name, and as the form now standing as *Forbesium hyemale* is pretty certainly an immature stage of it, the subspecies may well take its name and be known as *L. ventricosum hyemale*.

Illustrated papers on both these subjects are ready for the printer, and will appear in the near future.

Professor C. H. Tyler Townsend, of the New Mexico Agricultural College, recently sent me specimens of an undescribed species of *Liobunum* taken at Las Cruces. It may be called *L. townsendii*. Its description is as follows:

Male.—Body 5 mm. long, 3.7 mm. wide; palpi, 5 mm. long. Legs, first, 43 mm.; second, 80 mm.; third, 45 mm.; fourth, 59 mm. General color of dorsum brown, approaching raw umber, with indistinct darker blotches, but no central marking. Ventrums light grayish brown. Palpi similar in color to ventrums, with dorsal surface of patella and of tip of femur darker brown. General color of legs raw umber, with whitish rings near articulations and blackish ones at articulations. Dorsum minutely tuberculate; articulation of the three posterior segments very distinct. Eye eminence rather high, nearly

square as seen from above; canaliculate; smooth except for two sparse rows of spinose hairs. Palpi rather long, slender, with no projecting angles; clothed with rather short hairs and a few minute spinose tubercles; claw slightly pectinate near base. Mandibles normal; light brown with tips of claws black. Femora angular. Second legs much more slender than others.

Female.—Body 7 mm. long, 5 mm. wide; palpi 4.5 mm. long. Legs, first, 35 mm.; second, 61 mm.; third, 37 mm.; fourth, 46 mm. Differs from the male chiefly by its larger body and shorter legs.

Described from three specimens (1 ♂ 2 ♀).—CLARENCE M. WEED.

Gall-Producing Insects.—Mr. Wm. Beutenmüller, of the American Museum of Natural History, publishes³ a useful Catalogue of Gall-producing Insects found within fifty miles of New York City. Eighty-eight species are enumerated, the family distribution of which is: Cynipidæ, 40; Tenthredinidæ, 2; Cecidomyidæ, 32; Tripetidæ, 2; Psyllidæ, 5; Aphididæ, 6; Acaroidea, 1. The next to the last family is called Aphidæ instead of the more correct Aphididæ. "The vegetable deformations called galls," writes Mr. Beutenmüller, are produced by insects. Generally an egg is inserted in a bud, a leaf, a root, or some other part of the plant, and the presence of this foreign body among the vegetable cells causes an abnormal growth of a definite shape. The variety of galls in respect to texture and substance is very great. Every species of gall-producing insects attacks its own particular plant, and a particular part of that plant, and produces a gall of a definite and uniform structure." The two plates accompanying (due to the courtesy of the author) show a variety of common galls. Plate (III) represents those made by the minute two-winged flies of the genus *Cadomyia*; and (IV) those made by the four-winged flies of the family Cynipidæ.

Recent Publications.—Mr. Henry G. Hubbard publishes⁴ an extended description of the larva of *Amphizoa lecontei*, illustrated by an admirable plate. He extends Schiödte's table of the larval characters of the principal families of adepagous coleoptera.

Through the cooperation of the Massachusetts Society for Promoting Agriculture, the Hatch Experiment Station of the Agricultural College has issued an edition of 45,000 copies of a bulletin concerning canker-worms, tent caterpillars, fall web-worms and tussock moths

³Bull. Am. Mus. Nat. Hist., V. iv, Art. xv.

⁴Proc. Ent. Soc. Wash., ii, pp. 341-346.

written by Professor C. H. Fernald. A special attempt is being made to induce the people of the State to suppress these pests. The author states that "There has been such culpable negligence on the part of many of our people with regard to the tent caterpillar that there can be no doubt that some legislation is needed to compel the negligent to destroy this pest on all the trees on their own land, and thus prevent it from extending to the trees in the surrounding orchards. Provision should be made for the destruction of tent caterpillars on all public lands as well as in the forests, and village improvement societies should urge such action in town meetings as shall make it the duty of the superintendent of roads to destroy all tent caterpillars on the trees and shrubs along the sides of the roads."

Mr. S. H. Scudder's Monograph of the Orthopteran Genus *Hippiscus* which has been running through *Psyche* for some time has been issued as a reprint. The thirty-eight species are grouped under the subgenera *Hippiscus*, *Sticthippus*, and *Xanthippus*.

Two interesting papers on the Butterflies and Crickets of Indiana have been published by Mr. W. S. Blatchley, of the Terre Haute High School. The former is extracted from the 17th Report on the Geology and Natural History of Indiana, and the latter from the Proceedings of the Indiana Academy of Science, 1891.

Mr. Wm. Beutenmüller records in the Bulletin of the American Museum of Natural History (v. IV, Art. XIII) an important List of Types of Lepidoptera in the Edwards Collection of Insects. This collection (made by the late Henry Edwards) "consists of about 250,000 specimens and about 25,000 species, representing all the orders and gathered in various parts of the globe. It is especially rich in Australian species and in North American species from the Pacific Coast. The present list enumerates 465 types of species.

The department of entomology of the University of Kansas has recently published a bulletin of 126 pages concerning "Common Injurious Insects of Kansas," prepared by Vernon L. Kellogg. The paper is well illustrated and will prove valuable to Kansas farmers.